DOCUMENT RESUME

ED 232 439 FL 013 792

AUTHOR Constantinides, Janet C.
TITLE International Students in the Scientific and Technical Writing Class.
PUB DATE 83
NOTE 9p.; Paper presented at the Annual Conference of the National Association for Foreign Student Affairs (35th, Cincinnati, OH, May 24-27, 1983).
PUB TYPE Guides - Non-Classroom Use (055) -- Speeches/Conference Papers (150)

EDRS PRICE MF01 Plus Postage. PC Not Available from EDRS.
DESCRIPTORS *English for Special Purposes; Foreign Students; Higher Education; Learning Activities; Second Language Instruction; Teaching Methods; *Technical Writing; *Writing Instruction

ABSTRACT

A course sequence for teaching the forms and formats of scientific and technical writing to English as a second language (ESL) learners is described. The first assignment, a letter of application, serves as a diagnostic indication of the student's ability. The second assignment, a narrative, is designed to define the importance of audience and purpose. Next, the narrative is transformed into an objective report. Then the student is asked to write a memo describing the "job" the student has "accepted" based on the career interests expressed in the initial letter of application. A process report is then required. It must be related to the student's major field of study and forces the writer to be totally outside of the material of the report. An analysis report follows which emphasizes the importance of rhetorical stance. The student next combines all of the techniques learned to date to produce an investigative report. The final written assignment is a long form report written to the same audiences outlined in the proposal. This sequence allows the ESL student to practice real forms and formats while providing a sense of reality by having the student create an audience and a communication task for each assignment. (RW)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

International Students in the Scientific and Technical Writing Class

by

Janet C. Constantinides
University of Wyoming

ED232439

It is becoming more and more the situation in U.S. colleges and universities that undergraduate major requirements include a course in technical writing. At the University of Wyoming, for example, such a course is required in such disparate majors as nursing and electrical engineering, recreation/park administration and finance, management information systems and psychology. Obviously, it is impossible to organize a course around thematic material in such a way that all students in a class of such different backgrounds could be involved equally. Additionally, international students who enter such a class have the added problem of being faced with forms and formats which they may not have encountered before, i.e., memos, progress reports, proposals. And to further complicate the situation, many of them have not achieved the writing skill levels that their American student counterparts have. The problems for the instructor of a technical writing course which includes students from a variety of major fields of study and a plethora of language backgrounds are indeed legion. What is described below is a course sequence which emphasizes for ESL students the forms and formats by presenting them so that each assignment relates in some significant way to the previous assignment. It also includes the presentation and practice of the syntactical, rhetorical, and grammatical principles of English necessary to produce each type of technical writing assigned.1

FL013792

The Sequence

The first assignment in the sequence(see Appendix) is a letter of application. The purpose of this assigment two-fold: 1) to get some indication of the student's career interests and major field of study, which are then used in formulating later assignments, and 2) as a diagnosis of the student's ability to write acceptable English, including the ability to recognize and use appropriate tone.

The second assignment is a narrative. Although this may seem like an unusual assignment in a technical writing course, it serves the specific purpose, particularly in relation to the ESL students, of helping to define the importance of audience and purpose. The assignment is to "Write a first-person narrative about some event which happened to you in the past which had a significant impact on you. Be sure the readers understand not only what happened but how you felt about it." In this assignment, the writer appears at the center of the material; he/she is the focus of the paper. This is usually a fairly easy assignment for ESL students because it involves the use of chronological order as an organizing principle and the use of

"PERMISSION TO REPRODUCE THIS MATERIAL IN MICROFICHE ONLY HAS BEEN GRANTED BY
Janet C. Constantinides
TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

U.S. DEPARTMENT OF EDUCATION
NATIONAL INSTITUTE OF EDUCATION
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)
This document has been reproduced as received from the person or organization originating it.
Points of view or opinions stated in this document do not necessarily represent official NIE position or policy.

personal experience for development.

This is followed by the third assignment which is to transform the narrative into an objective report. In contrast to the narrative, in the objective report the writer is no longer at the center of the report; he/she is now a "reporter" and may appear in the report but is not the focus of it. For example, a student whose narrative was about the excitement of winning a scholarship competition may be asked to write an objective report as though he/she were the chairman of the scholarship committee reporting to the donor of the scholarship about that year's choice. The objective report is like the narrative in that it uses chronological order and is written with the use of primarily past tense verbs with prepositions and adverbs of time.2 But unlike the narrative, the objective report does not describe feelings. It also calls for a different selection of material; those details that were appropriate to the narrative are often not appropriate to the objective report and other details not included in the narrative must be included in the objective report. Here the emphasis is on the definition and importance of audience and purpose, introduced in the previous assignment, and how defining those clearly before beginning the writing task helps make certain decisions on the part of the writer, decisions about tone, format, and even what material to include.3

Assignment four is to write a memo describing the "job" that the student has"accepted" based on those career interests expressed in the letter of application. It requires three specific pieces of information: the company (or organization) for which the student will be "working" during the semester, the position the student has accepted within that company, and the specific task which has been assigned to the "new employee" by the company. The memo is addressed to the same person to whom the letter of application was written. This assignment, although it sounds rather simple, is in fact somewhat difficult for international students, and refugee students,to handle. The first time I gave this assignment, all the international students in the class said they were going to be presidents or vice-presidents of the companies involved! This provides an opportunity for talking about the organizational structures of American businesses and institutions and contrasting them with those of the students' home countries and cultures.4 From a writing point of view, there are two areas of importance here : again, the idea of audience and how knowing who the audience is determines selection of detail and appropriate tone; and, related to this, the informal style that is often used in a memo and how that differs from the style required by the letter of application.

The next writing assignment is a process report. The subject of this report must be related to the major field of study of the student and the project which he/she will undertake for the semester. Like the objective report, the process report uses chronological order. But it differs from the objective report in three important ways: 1) in this case, the writer is totally outside of the material of the report; the writer does not

"appear" in the writing; 2) process reports are written in the present tenses in contrast to the past tenses used in the objective report; 3) the importance of the use of active-passive verb distinctions becomes apparent in the process report unlike in the objective report where the "doers" had to be identified thus necessitating the use of active voice verbs in most cases. Also conditionals are stressed in this writing assignment.

Following the process report is an analysis report. Like previous papers, there is the importance of rhetorical stance to be considered. In this case, the writer may be either inside or outside of the material being analyzed, that choice depending on the audience and purpose of the analysis. The student is required to define both audience and purpose for this report. Again, the subject must be related to the project area the student has chosen, and in many ways the analysis uses the characteristics already practiced in previous assignments. For example, it probably includes chronological order. It may be like the objective report in that it analyzes specific events in the past, or it may be like a process report in that it analyzes a series of repeatable actions, a process, and then uses conditionals as in the process report. It is different from either of these, however, because the emphasis is on the why rather than on the how or what. And, very importantly, the analysis report uses logic and thus must involve the student in becoming aware of the rhetorical and syntactical patterns used in the presentation of logic in written English. For example, the importance of transitions, both overt and implied, is a major part of this assignment.

The next assignment draws on the writing skills presented in all the previous assignments (except perhaps the narrative). The audience has now been defined by the student, in consultation with the instructor; and at this point in the course the student has selected a project for investigation which he/she will undertake for the particular "company" for which he/she is "working" for the semester. That audience is a multi-level audience including both the immediate supervisor, who probably has as much or nearly as much technical expertise as the writer, as well as a more general audience, a group of decision-makers within the company who do not have the technical expertise of the writer. Given that mixed audience, then, the student must write a proposal which identifies a problem within the organization, indicates the necessity for solving that problem and the benefits to the organization if the problem is solved, and outlines the methods to be used to investigate the problem. In the introduction section defining the problem, the student may use objective reporting skills in documenting how the problem came into being. He/she will use analysis writing skills in telling why it is a problem, why it needs to be solved, and what the benefits to the company will be. In the methods section, the student uses chronological order again and possibily will need to use the writing skills practiced in the process report if the investigation involves the use of a particular process. The use of modals and conditionals, introduced in previous assignments, is reviewed for this

assignment. The proposal adds two new dimensions--the use of the future tense, in the methods section and the discussion of benefits to the company; and the idea of writing in one assignment to two different audiences, thus requiring two rhetorical stances when writing about the same material, one in the letter of transmittal to the immediate supervisor and another in the report itself. This proposal defines the project which the student will undertake during the rest of the semester. Anything included in the proposal must be accounted for in writing by the student throughout the rest of the course.

While the student is undertaking the investigation of the problem,he/she has three short writing assignments. The first two of these are to write an abstract and a summary of an article relating to the project. These introduce writing skills which, in fact, depend heavily on reading skills,and as such are quite different from the previous papers; but it is also intended that students will be able to use the writing skills that they learned in previous assignments to identify the organization, etc., of the article which they abstract and summarize. Additionally, these assignments introduce another new element, that is a different rhetorical stance, that of the disinterested outsider who is "reporting" but in a different way than the writer of the objective report did. The audience for the abstract is the immediate supervisor; the audience for the summary is the uninformed reader, the decision-maker or manager. The other short assignment at this point is a progress report which is written to the same audience as that of the proposal's letter of transmittal. It involves using skills that have been practiced in previous reports. For example, the chronological order of the objective report is used in the "Work Completed" section; the cause/effect analysis skills used in the analysis report are used in the section which discusses why the project is not on schedule (as is almost always the case, I have found) or what changes in the project have had to be made or need to be made in the future; the prediction skills used in the proposal for explaining how solving the problem would benefit the company are used in the "Work To Be Done" section and in predicting whether or not the project will be completed on time.

The final written assignment (there is also an oral presentation) is a long-form report written to the same audiences outlined in the proposal. In this final report, all of the skills practiced in the previous assignments (with the exception of the narrative) are used. The identification of the audiences and purpose for the report is crucial; they define the types and amounts of information that can be included in this report. All of the other skills discussed above are used in the various sections of the final report--process, analysis, various verb tenses, conditionals, modals, appropriate tone, etc. Even the skills used in the abstract and summary can be used in this assignment if the student has undertaken a project which involves any kind of literary research of the topic, as almost all projects do. This paper adds writing recommendations to the kinds of

writing done earlier. But the writing skills needed to do that have already been practiced, i.e., cause/effect, prediction.

Disadvantages

There are some difficulties in this sequence which are specific to many ESL students and most international students. One, the idea of role playing is difficult for them. The role-playing occurs in setting up a particular audience, in adopting a particular rhetorical stance, in having a certain "position" in a "company." The problems involved in role-playing are handled first of all in the class presentation of the memo and then later in individual conferences. Also, there are certain class exercises which involve role-playing early in the course.

Related to this is the problem for interational students of understanding the organizational chart of American businesses, of knowing how a suggestion or a proposal from an employee is processed through the system. This is discussed in preparing the letter of application, the memo, the proposal, the progress report, and the final report.

The third problem for ESL students is recognizing and adopting an appropriate tone or register. The assignments within this sequence allow for writing that varies in tone from very informal, in the memo, to very formal, in the proposal and the final report. At each step of the way, as this becomes an increasingly important part of the assignments, the problem of appropriate register is discussed in class and also in individual conferences.

Another important problem for many internatical students, one that inhibits to some degree their initial success in the writing assignments, is the idea that a subordinate can tell or suggest or propose anything to his/her "superior" and that this can be done in writing so that it is visible to others as well. Most of the international students with whom I work would expect to be told what to do by a supervisor; but the memo and specifically the proposal and final report require that the writer, the subordinate, indicate to the superiors what needs to be done and how to go about doing it. This is a situation in which many of the international students feel uncomfortable at the beginning and requires a great deal of discussion of how, in this culture, subordinates can make their ideas known in an acceptable manner. Again, class discussion of this matter is re-enforced in individual conferences. It is important, in my view, that international students be able to handle this kind of writing since many of the ones with whom I work tell me that when they return home they will be in communication with American companies and they will be using American technology and expertise in the hopes of solving problems within either their companies or their countries.

Perhaps the biggest problem for international students, and for the instructor, has to do with the rhetorical patterns used to present reasoning in technical writing in English. The sequence of assignments outlined for this course also follows a problem-solving approach to the idea of writing, but that

problem-solving approach is uniquely American. As Patricia Byrd and Gregory West have indicated, "We have no idea what kinds of writing are done by a Venezuelan engineer working in Venezuela for a Venezuelan firm. Perhaps in the world of technology the cultural differences that exist in other areas do not occur."5 While I agree with the first part of that assessment, my experience leads me to doubt the last part. What is needed is more information about the contrastive analysis of scientific and technical writing in other languages. What kind of writing will our ESL students be asked to do? Are the assignments included in this course appropriate to the kind of writing international students will have to do when they return home? Or, is it possible that they will be doing some kinds of writing in English and very different types of writing in their own languages? If we knew the answers to these questions, would that be helpful to us in organizing and teaching a technical writing course for international students?

Advantages

In spite of the disadvantages listed above, there are certain advantages which using the outlined sequence has. First, it is a sequence of assignments, not a random ordering. Therefore, the instructor can present new material by comparison and contrast to what has already been practiced. It involves a cumulative effect. As pointed out above, the proposal, for example, uses the rhetorical, discourse, and grammatical features that were practiced in the previous four assignments; and the final report uses features that were practiced in all of the previous assignments (with the exception of the narrative).

Secondly, it has the advantage of having the student define the topic about which he/she will write. Since the student is writing from the strength of knowledge about the topic, he/she becomes the "expert" who is giving real information, information not previously known, to a specific audience. This provides for a great deal of motivation. The student now has a real function as a writer rather than simply going through certain motions to put on paper that which the reader (teacher) already knows and that the teacher will then red-pencil to death. It is also possible that, by designing the topic and investigating the project based on that topic, the student may in fact learn something more about his major field.

The third advantage to this approach is that it does follow a problem-solving approach. This is a culture-specific approach to learning that should be helpful to those students studying in this culture since the problem-solving approach underlies much of the instructional philosophy in post-secondary education in the U.S. For example, according to Walter C. Thomas, in Engineering Education, the main purpose of engineering training should be to teach students how to define and solve problems.6 And case studies are an integral part of most management courses. Thus the sequence is re-enforcing a learning technique that international students need to be able to use if they are to be successful as students.

The final advantage is that it creates an audience other just the teacher. This is in fact two advantages. First, the student has to analyze that audience; he/she has to posit what technical/scientific information the audience already has and what they need to be given. This involves choice of terminology, amount of explanation needed, kinds of information that can be included. Also, the student has to determine the audience's position relative to the writing as being accepting, antagonistic, neutral, etc., which then dictates the rhetorical strategies that need to be used for effective communication. Secondly, it takes some of the onus off the teacher. It is sometimes difficult to convince students that an ordinary English teacher (especially a female) can read and understand information about a scientific or technical field. But since the audience as defined for these writing assignments includes people who have an interest in the area but not necessarily any expertise in that area, the English teacher becomes a more feasible audience in the minds of the students. And, in combination with the sequence of assignments, this idea of the intelligent but uninformed audience ensures that the teacher will actually be able to read with understanding what the student writes. By the time the student writes the proposal, the instructor has read several other papers related to the project topic including a definition and description of a process and an analysis of some part of the project area. Thus the teacher becomes informed about the subject to the extent necessary to able to evaluate the writing adequately. And the instructor serves as a real audience for the student since the instructor is like a manager, interested in the material but unfamiliar with it.

Conclusion

The sequence of assignments described above allows the ESL students to practice real forms and formats of technical writing as they are used in English. It provides a sense of reality by having the student create an audience and a communication task for each assignment. It also provides for the presentation and practice of the syntactical, rhetorical, and grammatical principles of English necessary to produce adequate technical writing in English.

Footnotes

1. For some different views about which grammatical and discourse items should be presented with what types of assignments, see Peter Master, "Teaching English for Science and Technology through Technical Writing," CATESOL Occasional Papers 7 (Fall, 1981) ERIC ED 210 920; and Robert Weissberg and Suzanne Buker, "Strategies for Teaching the Rhetoric of Written English for Science and Technology," TESOL Quarterly vol. 12, no. 3 (Sept., 1978),321-319; and Thomas N. Huckin, "Teaching the Use of English Articles to Non-native Speakers in Technical Writing Classes," in Courses, Components and Exercises, ed. by Dwight Stevenson, (Chicago: NCTE, 1981).

2. For an analysis of the importance of verb tense in technical writing, see Larry Selinker and Louis Trimble, "Formal Written Communication and ESL," Technical Writing and Communication vol,4, no. 2 (Spring, 1974), 81-91; and "Technical Rhetorical Principles and Grammatical Choices," TESOL Quarterly vol. 7, no. 2 (1973), 127-136.

3. For other views of the importance of audience in writing, see Walter J. Ong, S.J., "The Writer's Audience Is Always a Fiction," Proceedings of the Modern Language Association 90 (1975), 5-21; and Mary B. Coney, "The Use of the Reader in Technical Writing," Journal of Technical Writing and Communication vol.8, no. 2 (1978), 97-106.

4. The need for more awareness of the cultural differences of ESL students learning technical writing is extremely important, but little has been done in this area. See, for example, Jean Zukowski-Faust, "The Problems Inherent in Teaching Technical Writing and Report Writing to Native Americans," and Carol S. Lipson, "Preparing for an Influx of Foreign Students in Technical Writing Courses," in Technical Communication: Perspectives for the Eighties (NASA Conference Publications 2203) ERIC ED 211 986-7; and Yoshiaka Shinoda," Pitfalls for Japanese Specialists in English Techni Writing," Journal of Technical Writing and Communication vol. 10, no.2 (1980), 103-108.

5. "The Purposes of Technical Writing Courses for Foreign Students in US Colleges and Universities," TESOL Newsletter vol. 15, no.2 (1981), 19-20.

6. "Technical Education: Teaching Students to Identify the Problem," Engineering Education LXVII (May, 1977), 799-800.